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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,639	01/21/2004	James M. Harris	JMH-P001	3334

7590 07/14/2005

James M. Harris
969 Rose Avenue
Menlo Park, CA 94025-4420

EXAMINER

HA, NATHAN W

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/761,639

Applicant(s)

HARRIS, JAMES M.

Examiner

Nathan W. Ha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 7-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) is being fully considered by the examiner.

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-6 are drawn to an integrated circuit device, classified in class 257, subclass 734.

II. Claims 7-12 are drawn to a method for producing integrated circuit device, classified in class 438, subclass 108.

A telephone call was made to James Harris on June 25, 200 to request an oral election to the above restriction requirement, the applicant elected Group I without traverse.

2. The inventions are distinct, each from the other because of the following reasons: Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case unpatentability of the group I invention would not necessarily imply unpatentability of the group II invention, since the device of group I invention could be made by processes materially different from those of the group II

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invention. For example, instead of forming a barrier layer on surface of said channels and then depositing an electrically conductive material on the barriers in the channels, as specified in claim 7, the steps of forming the barrier and the electrically conductive material layer can be carried out (deposited in it) simultaneously.

Specification

The disclosure is objected to because of the following informalities: There is no description of element 443 in Fig. 4C. Appropriate correction is required.

The disclosure is objected to because of the following informalities: A region separating an integrated circuit from neighboring integrated circuit (in claim 1) was not mentioned in the specification. Appropriate correction is required.

The disclosure is objected to because of the following informalities: A barrier material (in claims 2-3 and 5-6) was not described in the specification. Appropriate correction is required.

Drawings

The drawings are objected to under 37 CFR 1.83(a) because they fail to show the conductive channel (220 or 225) (in Figs. 3A and 3B) and contacts (223) (in Fig. 5A and 5B) as described in the specification. There is no description of "channel surfaces" as mentioned in claim 5. A region separating an integrated circuit from neighboring integrated circuit (in claim 1) was not described in the drawing. A barrier material (in claims 2-3 and 5-6) was not described in the drawing. Any structural detail that is

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essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 2 is objected to because of the following informalities: the phrase "integrated circuit body" is unclear. Examiner assumes the integrated circuit body is in between the front side (201) and backside (202) of the wafer (200) (in Fig. 2A). Appropriate correction is required.

Claim 4 is objected to because of the following informalities: The phrase "known thickness" is unclear. There was no "known thickness" in the specification. It should be changed to a "predetermined thickness".

Claim 5 is objected to because of the following informalities: The phrase "said channel surfaces" is unclear. The phrase "channel surfaces" was not mentioned in claim 4, which claim 5 depends on. Therefore, it should be changed to "channel surfaces".

Claim 6 is objected to because of the following informalities: The phrase "said separation region" is unclear. It was not mentioned in claim 4 or claim 5, which claim 6 depends on. Therefore, it should be changed to "separation region".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-6 are rejected under 35 U.S.C. 102(a) as being anticipated by Prabhu (U.S. Pub. 2003/0209772.)

With respect to claim 1, Prabhu discloses (Fig. 7A-K) an integrated circuit formed on a semiconductor wafer comprising:

a region (504) separating said integrated circuit (501) from neighboring integrated circuits (502);

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one or more contact pads (507) within said integrated circuit (501) on said first surface (upper surface);

one or more electrically conductive materials (706) placed in communication with said bonding pad (507); and

said electrically conductive materials (706) making contact to said second surface (lower surface) or said region.

With respect to claim 2, Prabhu further discloses a barrier material (703) is placed between said conductive material (706) and integrated circuit body (between the upper and lower surfaces).

With respect to claim 3, Prabhu further discloses said conductive material (706) surrounded by said barrier material (703) is contained in a channel (container of the barrier material) in said semiconductor wafer (500) and said channel (container of the barrier material) connects said front surface bonding pad (upper surface) to said second surface (lower surface) or said separation region.

With respect to claim 4, Prabhu discloses (Figs. 5 and 7) an integrated circuit formed on a semiconductor wafer comprising:

a region (504) separating said integrated circuit (501) from neighboring integrated circuits (502);

one or more contact pads (507) within said integrated circuit (501) on said first surface (upper surface);

one or more electrically conductive materials (706) placed in communication with said bonding pad (507); and

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said electrically conductive materials (706) making contact to said second surface (lower surface) or said region.

With respect to claim 5, Prabhu further discloses a barrier material (703) is placed between said conductive materials (706) and said channel surfaces (container of the barrier material).

With respect to claim 6, Prabhu further discloses said conductive material (706) surrounded by said barrier material (703) is contained in a channel (container of the barrier material) in said semiconductor wafer and said channel (container of the barrier material) connects said front surface (upper surface) bonding pad (507) to said second surface (lower surface) or said separation region (504) after a portion of said known thickness has been removed.

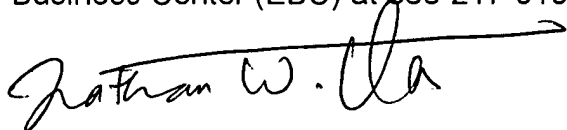
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Nathan W. Ha", with a long horizontal stroke extending to the right.

Nathan Ha
July 9, 2005

Loan Nguyen